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(54) **DISPENSING CLOSURE WITH PLIABLE SEALING SURFACE**

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F16J 15/02	(2006.01)

(52) **U.S. Cl.**
USPC **215/235**; 220/254.3; 277/642; 264/255

(58) **Field of Classification Search**
USPC 220/254.3, 254.1, 849, 810, 837, 220/836, 804, 806, 259.1, 256.1; 215/356, 215/355, 341, 344, 343, 346, 316, 237, 235, 215/243, 200; 264/242, 251; 222/544; 277/642, 277/641, 637, 628
IPC B65D 39/04,41/62, 51/18; B28B 7/22; F16J 15/02
See application file for complete search history.

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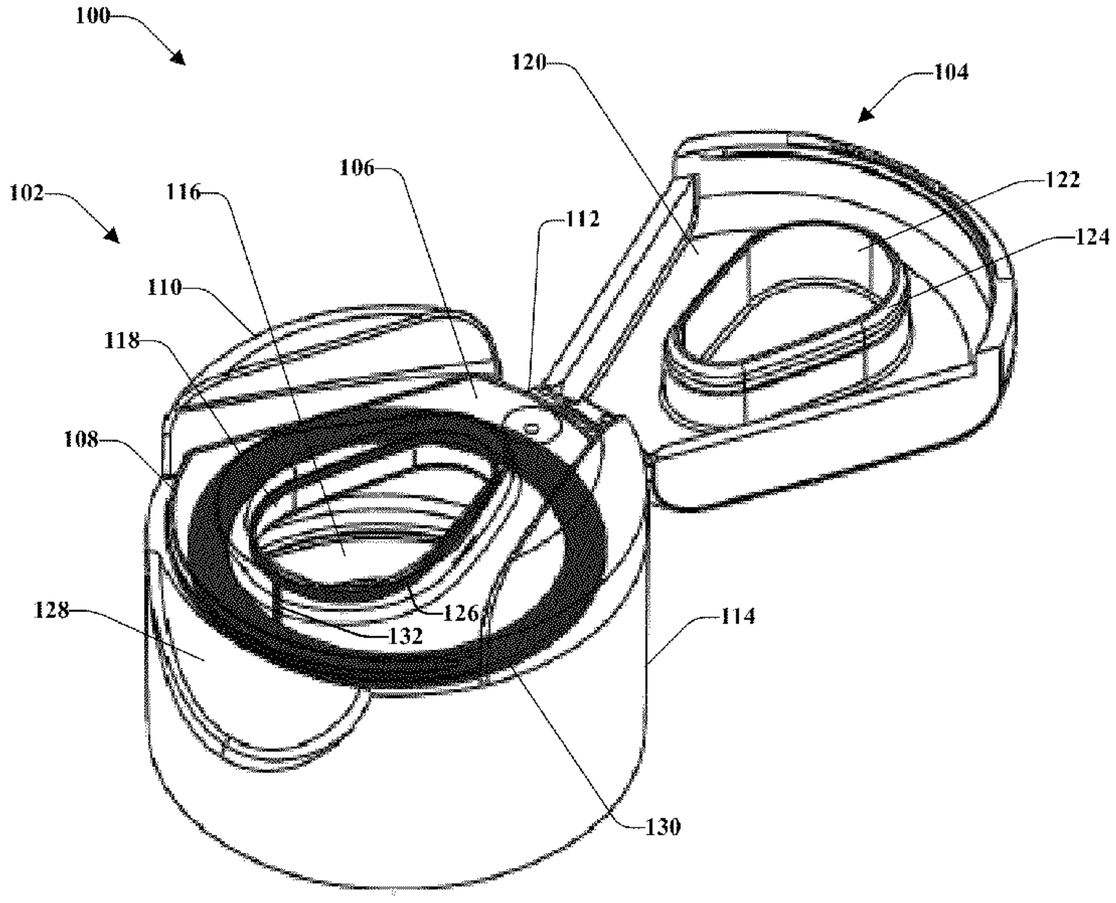
(57) **ABSTRACT**

A dispensing closure that comprises a pliable sealing surface that is selectively formed with a dispensing opening or a cleanout. At least a portion of the pliable sealing surface can be formed at a base of a skirt, wherein the skirt engages the dispensing closure with the container. Material of the pliable sealing surface can be bonded with material of a body portion and a flap portion of the dispensing closure during a multi-shot injection molding process. The pliable sealing surface can be formed from a thermoplastic elastomer and the body portion and flap portion can be formed from a polymer material.

20 Claims, 4 Drawing Sheets



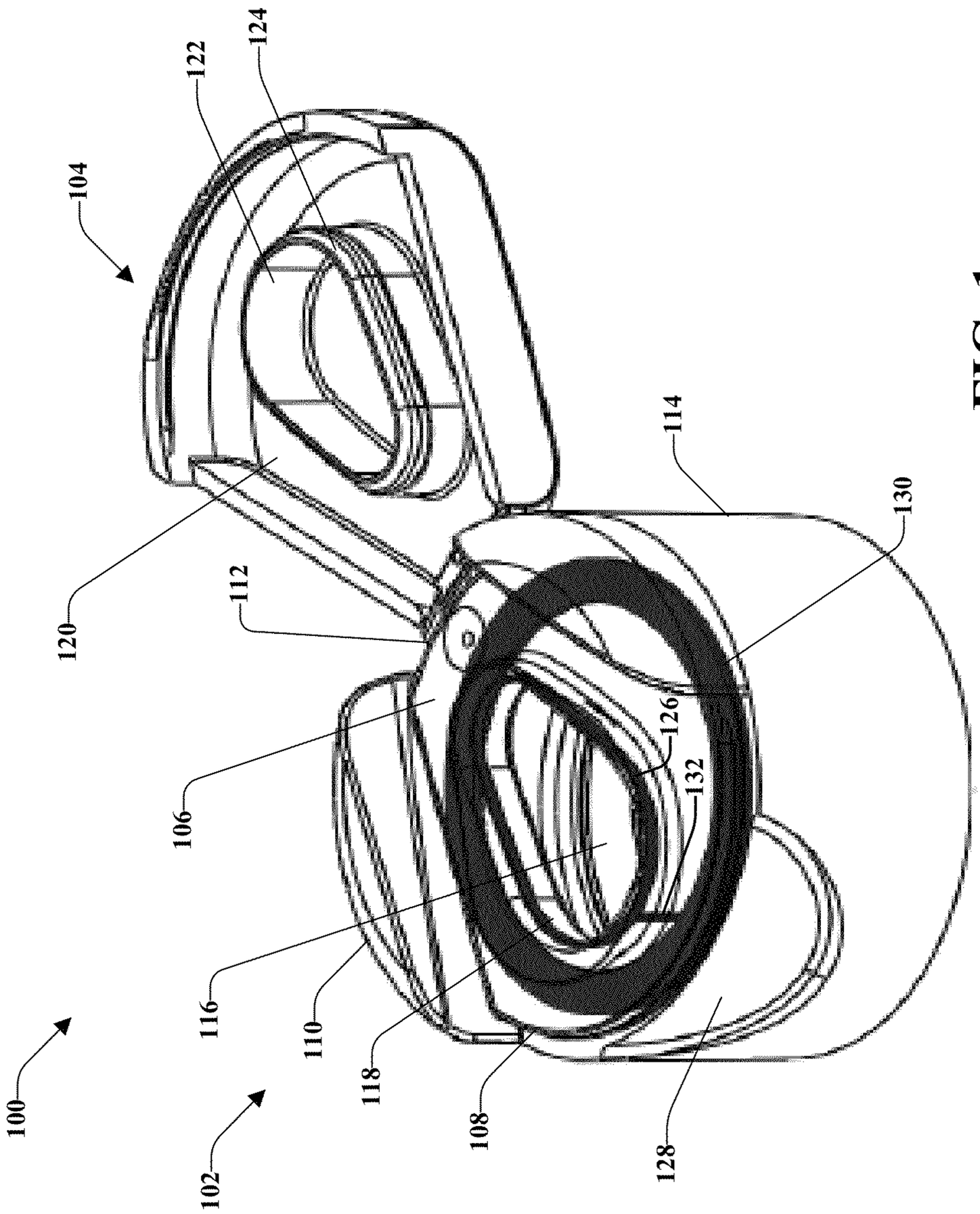

100
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FIG. 1

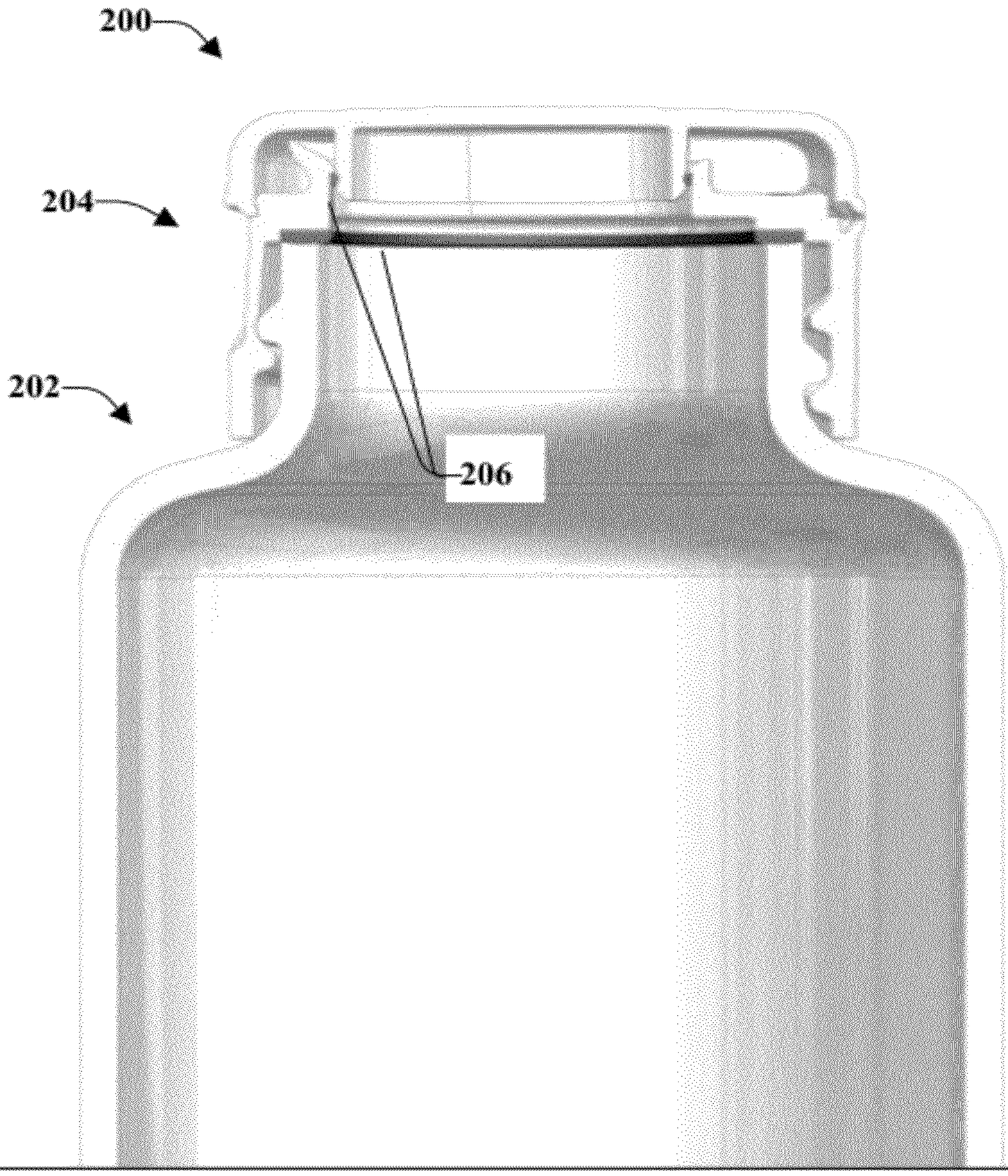

FIG. 2

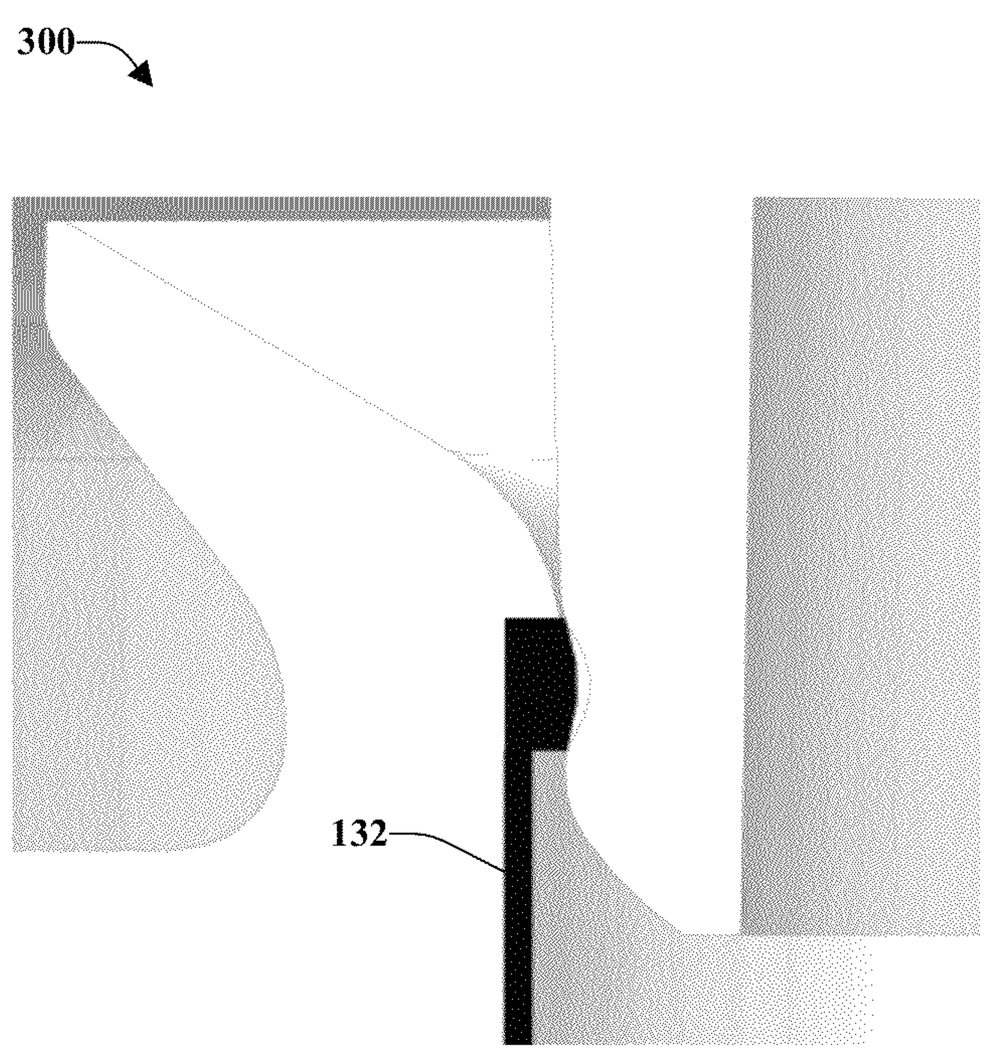

FIG. 3

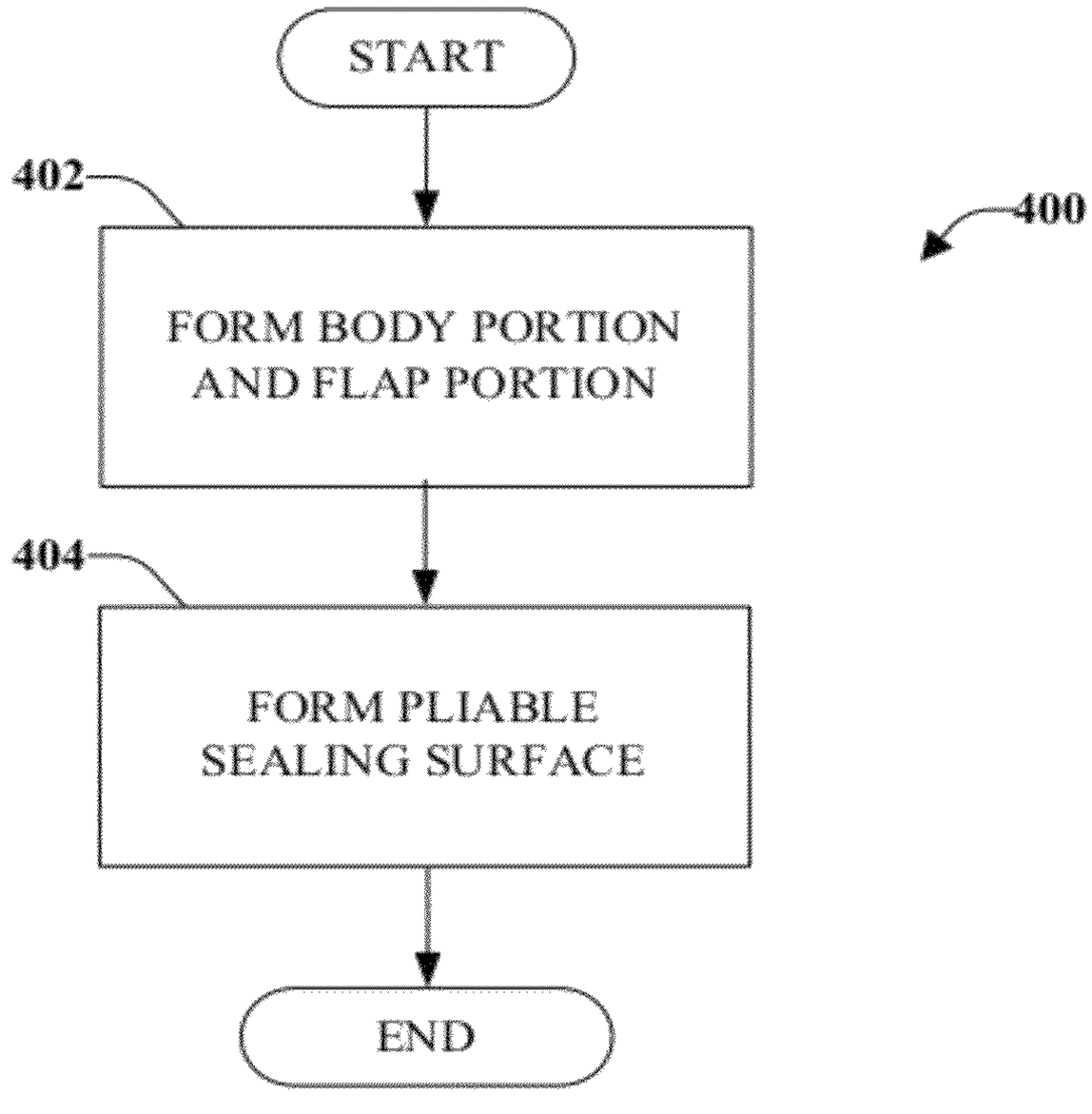
START
402
FORM BODY PORTION AND FLAP PORTION
400
404
FORM PLIABLE SEALING SURFACE
END

FIG. 4

DISPENSING CLOSURE WITH PLIABLE SEALING SURFACE

TECHNICAL FIELD

The following description relates generally to dispensing closures for bottles, jars, and the like, and, more particularly to seals for dispensing closures.

BACKGROUND

Dispensing closures or caps are utilized with containers (e.g., bottles, jars, cans, and so forth) that can be made of the same, or a similar material, as the dispensing closure. For example, both the dispensing closure and the container can be formed from a polymer material. Further, the dispensing closure can include components, such as a flap that can be flipped away from a main portion of the dispensing closure in order to access contents of the container. The flipping or pivot action can provide access to the container contents without completely removing the dispensing closure from the container (e.g., allowing access to the container contents with minimal effort). The flap portion of the dispensing closure can include a cleanout that is inserted into a dispensing opening in the main portion. Both the cleanout and the dispensing opening can be made of the same, or a similar material, such as a polymer material.

Since the dispensing closure components and the container are generally formed of the same (or a similar) material, friction can be created when these items come in contact. For example, when a dispensing closure (or cap) is engaged with a container (e.g., cap is screwed onto the container), friction can be created. This friction can prevent the dispensing closure from completely sealing onto the container, which can produce areas of leakage. Further, if there are imperfections in the screw threads (or other contact portions of either (or both) the dispensing closure or container, the rigid material of the components can create gaps or other leakage areas due to the imperfections.

In a similar manner, contact between the dispensing closure components (e.g., cleanout and dispensing opening) can be a plastic-to-plastic contact. When the flap is to be opened, the friction created when the plastic flap is pulled away from the plastic dispensing closure can make it difficult to open the flap, especially for persons with arthritis or other disabilities. When the flap is to be closed, the rigid plastic-to-plastic contact can make it difficult to press down the flap to engage the cleanout completely into the dispensing opening. Thus, the seal might not be as tight as desired, especially for liquids and/or fine grain contents (e.g., powder, spices, and so forth), which can result in undesired leakage.

SUMMARY

The following presents a simplified summary of one or more aspects in order to provide a basic understanding of such aspects. This summary is not an extensive overview of all contemplated aspects, and is intended to neither identify key or critical elements of all aspects nor delineate the scope of any or all aspects. Its sole purpose is to present some concepts of one or more aspects in a simplified form as a prelude to the more detailed description that is presented later.

An aspect relates to a dispensing closure comprising a body portion, a flap portion, and a pliable sealing surface. The body portion comprises an end wall, an orifice in the end wall, and a skirt that depends from the end wall. Contents of a container are accessed through the orifice and the skirt engages the dispensing closure with the container. The flap portion comprises a depending wall that comprises a cleanout. The pliable sealing surface contacts a rim of the orifice and a perimeter of the cleanout when the flap portion is in a first position. In accordance with some aspects, the body portion and the flap portion are connected with a hinge, wherein the flap portion contacts the body portion in the first position and does not contact the body portion in a second position.

Another aspect relates to a method of producing a dispensing closure. The method comprises forming a body portion and a flap portion. The body portion comprises a skirt that engages the dispensing closure with a container and an orifice through which contents of the container are dispensed and the flap portion comprises a cleanout. The method also comprises forming a pliable sealing surface with the body portion and the flap portion. The pliable sealing surface is formed to contact a rim of the orifice and a perimeter of the cleanout when the flap portion is in a first position. According to some aspects, the body portion and the flap portion are formed of a polymer material and the pliable sealing surface is formed of a thermoplastic elastomer, the polymer material and the thermoplastic elastomer bond during a multi-shot molding process.

To the accomplishment of the foregoing and related ends, one or more aspects comprise features hereinafter fully described and particularly pointed out in the claims. The following description and annexed drawings set forth in detail certain illustrative features of one or more aspects. These features are indicative, however, of but a few of various ways in which principles of various aspects may be employed. Other advantages and novel features will become apparent from the following detailed description when considered in conjunction with the drawings and the disclosed aspects are intended to include all such aspects and their equivalents.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** illustrates a dispensing closure comprising a pliable sealing surface, according to an aspect.

FIG. **2** illustrates a cross section side view of a dispensing closure that comprises a pliable sealing surface, according to an aspect.

FIG. **3** illustrates a cut-away view of a portion of a dispensing closure, according to an aspect.

FIG. **4** illustrates a method for producing a dispensing closure, according to an aspect.

DETAILED DESCRIPTION

Various aspects are now described with reference to the drawings. In the following description, for purposes of explanation, numerous specific details are set forth in order to provide a thorough understanding of one or more aspects. It may be evident, however, that such aspect(s) may be practiced without these specific details. In other instances, well-known structures and devices are shown in block diagram form in order to facilitate describing these aspects.

Now turning to the figures, FIG. **1** illustrates a dispensing closure **100** comprising a pliable sealing surface, according to an aspect. The pliable sealing surface is configured to seal a dispensing opening and can allow the dispensing closure **100** to be opened for dispensing purposes and closed after dispensing while mitigating friction forces developed during the opening and closing functions. The pliable sealing surface can also provide a tight seal around the dispensing opening, which can provide fluid-tightness, according to an aspect. In

accordance with some aspects, a pliable sealing surface can be applied between the dispensing closure and a landing of the container (e.g., located at a base of a skirt) to provide further sealing features.

Dispensing openings that are closed by plugging (e.g., such as flipping down a top that comprises a piece or plug that engages an orifice in a portion of the dispensing closure that covers a mouth of a container) might not close properly. For example, when the plug is pressed into the orifice, the mating surfaces of the plug and orifice, when made of similar material, might produce friction. The friction can be such that the mating surfaces do not engage fully, which can result in portions of the plug not fully engaging into the orifice. This can cause leakage of the container contents, which can develop if the container is dropped, placed on its side, inverted, and/or stored in an inverted position (e.g., with the dispensing closure forming the base of the container). Thus, if the orifice is not properly sealed by the plug, the contents of the container can leak, which can be especially pronounced when the contents are fluid or comprise smaller particles. Further, since the orifice and plug might be non-round (the design can be a function of the contents or based on other considerations), the pressure on the plug (to engage the plug into the orifice) might be non-uniform. This non-uniform pressure can cause only some portions of the plug to be fully engaged in the orifice, leading to leakage concerns. In accordance with some aspects, the orifice can be a round orifice.

In accordance with some aspects, the dispensing closure **100** is formed of an injection molded suitable thermoplastic material (e.g., polymer) or other material well known in the art. In accordance with some aspects, the dispensing closure **100** can be formed by a multi-shot injection molding process (e.g., two-shot, three-shot, and so forth). Generally, each "shot" is an injection molding process. For example, the dispensing closure might consist of different colors, wherein a different shot is used for each color. Additionally or alternatively, the dispensing closure can be made of different materials, wherein a different shot is utilized for each material.

The dispensing closure **100** can be a unitary or a one-piece structure. In accordance with some aspects, the dispensing closure is a two-piece structure. It should be noted that although the various aspects are illustrated as a generally circular dispensing closure, the various aspects are not limited to this implementation. In accordance with some aspects, the dispensing closure can have a different geometric shape (e.g., oval, oblong, and so on).

Ordinarily, a dispensing closure is installed upright on the top of a container (FIG. **2**) that has a mouth that typically lies in a horizontal plane. For purposes of discussion, the vertical direction generally corresponds to an axial direction with reference to the geometry of the dispensing closure **100** and the horizontal direction or horizontal plane is perpendicular to the axial direction of the dispending closure **100** (e.g., the vertical direction). It should be understood that during molding, the dispensing closure could have a non-upright orientation.

Dispensing closure **100** comprises a body portion **102** and a flap portion **104**. The flap portion **104** can have at least two positions: a first position and a second position. When the flap portion **104** contacts the body portion **102** (e.g., the dispensing closure is closed), the flap portion **104** is in the first position. When the flap portion **104** is away from the body portion **102** (e.g., the container contents can be dispensed), the flap portion **104** is in the second position. FIG. **1** illustrates the dispensing closure in the second position. FIG. **2** illustrates a dispensing closure in the first position.

The body portion **102** comprises an end wall **106**, which, in the illustrated example, comprises an inclined central deck area **108** and lateral transition area **110**. The flap portion **104** is pivotally joined to the end wall **106** by, for example, a hinge **112**. The hinge can be a "living hinge" that is formed with body portion and the flap portion as a single piece. In accordance with some aspects, the hinge can be a "pivoting hinge" that is formed with the body portion (or the flap portion), wherein the body portion and the flap portion are formed as separate pieces and snapped together at the hinge to combine the two pieces.

The hinge **112** lies in a plane perpendicular to the axis of a skirt **114**. The hinge **112** allows for ease of moving the flap portion **104** between the first position and the second position. The hinge **112** can be constructed of a relatively thin wall that is configured to flex without breakage during an expected service life of the dispensing closure **100**. The hinge **112** allows the flap portion **104** to be moved away from the body portion **102** (e.g., flipped up, placed into second position) for dispensing and is moved into contact with the body portion **102** (e.g., placed into first position) for storage purposes. In accordance with some aspects, the body portion **102** and the flap portion **104** can be separate pieces (e.g., a hinge is not utilized).

A hollow skirt **114** depends from the end wall **106**. The skirt **114** is configured to engage with a container (e.g., bottle, jar, and so forth). For example, the skirt **114** can engage with a mouth of a container (shown in FIG. **2**) in a threaded manner or in a non-threaded manner. In accordance with some aspects, an interior portion of the skirt **114** can comprise screw threads that are configured to engage complimentary threads on a neck portion of the container, wherein the dispensing closure **100** can be screwed onto the mouth of the container. According to some aspects, internal threads are not utilized and the dispensing closure **100** is engaged with the container through other means (e.g., snap-on, press-on, and so forth). Further, the dispensing closure **100** can engage the container in a removable manner or in a non-removable manner. An exterior portion of the skirt **114** can be smooth or can comprise small vertical grooves or other textural features that can improve a person's ability to grip the dispensing closure **100** for removal from the container (e.g., by unscrewing, by pulling the dispensing closure **100** away from the container, and so on).

The body portion **102** also comprises a dispensing opening or orifice **116** though which contents of the container are dispensed. An example of a tear-drop shaped orifice is illustrated, wherein a narrow end of the orifice **116** is proximal to the hinge **112** and a major end of the orifice **116** is distal from the hinge **112**. However, the orifice **116** can be any geometric shape including both round and non-round shapes (e.g., pear-shaped, oval-shaped, and so on). The orifice **116** comprises a rim **118** and can be level with the inclined central deck **108** of the body portion **102**, as illustrated. However, in accordance with some aspects, the orifice **116** can include an inclined spout or another configuration that facilitates dispensing of the container contents.

Located on an underside of the flap portion **104** is a depending wall **120** having a configuration that is complimentary to the orifice **116**. In accordance with some aspects, the depending wall **120** has a curvilinear configuration. The depending wall **120** comprises a plug or cleanout **122** that is configured to close the dispensing closure **100** in a sealed manner (e.g., fluid-tight manner). The cleanout **122** comprises a perimeter **124** and can be the same (or a similar) shape as the orifice **116**. In accordance with some aspects, the cleanout **122** is slightly smaller than the orifice **116**, which allows the cleanout **122** to

fit inside the orifice **116** when the flap portion **104** is in contact with the body portion **102**. In more detail, when the flap portion **104** is closed against or adjacent the end wall **106**, the cleanout **122** enters the orifice **116** and the perimeter **124** of the cleanout **122** is engaged by sealing beads or a pliable sealing surface with a fluid-tight engagement.

When a person pushes down on the flap portion **104** to engage the cleanout **122** into the orifice **116** (e.g., to contact the perimeter **124** with the rim **118**), different pressures can develop around the cleanout **122**. For example, if the orifice **116** and cleanout **122** are large (in surface area) or have a geometry that is not uniform or non-round (e.g., tear-drop-shaped), pressure applied to one portion of the cleanout can be greater than pressure applied to another portion of the cleanout. Further, there might be different pressures applied since the user might simply be pushing down at any portion of the flap portion **104**, which might not be over the cleanout **122**, especially if the cleanout **122** and orifice **116** are small. For example, the size of a dispensing opening for vanilla extract might have a small circumference so that a small quantity of fluid is removed from the container at a time. However, the container might be large (depending on the quantity of vanilla extract purchased). Thus, the size of the dispensing opening is small compared to the size of the dispensing closure.

To overcome problems associated with uneven sealing of the cleanout **122** into the orifice **116**, a pliable sealing surface **126** can be formed around the rim **118** of the orifice **116**. In accordance with some aspects, the pliable sealing surface is formed at the perimeter **124** of the cleanout **122**. The pliable sealing surface **126** can be formed though a multi-shot injection molding process. For example, the body portion **102** and the flap portion **104** are formed during a first-shot injection molding process and the pliable sealing surface **126** is formed during a second-shot injection molding process. The material of the body portion **102** and the flap portion **104** bond with the material of the pliable sealing surface **126** during the molding process. In accordance with some aspects, the body portion **102** and the flap portion **104** are formed with a single-shot (or multi-shot) process (as a single piece or as a two-piece structure) and the pliable sealing surface **126** is formed with a second-shot (or subsequent-shot) process.

The pliable sealing surface **126** can be made from any pliable-type material suited for the intended purpose of the dispensing closure **100**. Examples of pliable-type material include thermoplastic elastomers, silicone, and so forth. The material selected should be capable of being deformed (e.g., can be indented) or that has at least some flexibility. In accordance with some aspects, the pliable-type material can have a shore hardness that is a function of the application (e.g., material of the dispensing closure, application of the dispensing closure, desired ease of closing, contents of the container, and so forth). Shore hardness indicates the elasticity of the material. The higher the number, the greater the resistance. Some shore hardnesses can be hard and sticky to the touch while other shore hardnesses can be soft to the touch.

In accordance with some aspects, the material utilized for the pliable sealing surface **126** is selected as a function of the desired sealing ability of the dispensing closure **100**. For example, a material with a low shore hardness (e.g., very pliable) can be utilized if the container contents are expected to be a liquid. A low-shore hardness can provide a sealing surface that can conform to irregularities of the rim **118** and/or perimeter **124**. In another example, a material with a higher shore harness can be utilized if the container contents are solid or semi-solid (e.g., a fluid-tight seal is not needed). Examples, of solid or semi-solid contents include food items (e.g., spices, cookies, cereal, peanuts, grains, and so forth) and non-food items, such as hardware (e.g., nuts, bolts, nails, fasteners, screws) as well as other items (e.g., rock salt, grass seed, sand, medicines, cosmetics, and so on). The container contents that can be utilized with dispensing closure **100** are endless and, therefore, will not be further discussed herein.

The pliable-type material of the pliable sealing surface **126** can be located around the rim **118**. In accordance with some aspects, the pliable sealing surface **126** can be located around the perimeter **124**. The location of the pliable sealing surface **126** should be selected so that the pliable sealing surface **126** contacts both the cleanout **122** and the orifice **116** when the flap portion **104** is in a closed or first position. For example, the pliable sealing surface **126** is located between the rim **118** of the orifice **116** and the perimeter **124** of the cleanout **122** when the flap portion **104** is in the first position. Engagement of the pliable sealing surface **126** between the cleanout **122** and the orifice **116** can provide a secure seal that mitigates leakage of the container contents.

Regardless of the location of the pliable sealing surface (e.g., rim of the orifice, perimeter of the cleanout), the friction forces of pressing the cleanout into the orifice can be overcome by deforming the pliable sealing surface. For example, if the dispensing closure is made of plastic, a large amount of friction can be caused between the plastic cleanout and the plastic orifice, wherein there are portions that are not sealed properly. Forming the dispensing closure with a pliable sealing surface can overcome sealing problems because plastic is no longer in direct contact with plastic, for example. Instead, in accordance with an aspect, the pliable material is engaging plastic (or other material) of the orifice or cleanout, depending on where the pliable sealing surface is located. Since the pliable material has at least some flexibility, the pliable material can conform to the actual shape of the material (e.g., polymer) it contacts.

In accordance with some aspects, the skirt **114** can comprise a shallow recess **128** that allows a person to grip an edge of the flap portion **104**. Moderate upward pressure can be applied to the underside of the flap portion **104** to overcome retention forces of the seal and friction between the cleanout **122** and the orifice **116**. The retention forces can further be overcome with the use of a pliable sealing surface, as disclosed herein.

In accordance with some aspects, a portion of the pliable sealing surface **126** is formed at a lower face or base **130** of the end wall **106**. The base **130** comprises a continuous sealing surface (e.g., pliable sealing surface) that contacts and can engage the mouth of a container (e.g., a landing of a container). Forming a portion of the pliable sealing surface **126** at the base **130** in such a manner can create a leak proof seal with the container. In order to create both the contact between the cleanout and orifice and the container, a connecting flow channel **132** is utilized to allow for a single-shot injection molding process for both pliable sealing surfaces (e.g., the sealing surface around the orifice (or the cleanout) and the portion that contact the container landing are formed during a single molding process). FIG. **2** illustrates a cross section side view of a dispensing closure **200** that comprises a pliable sealing surface, according to an aspect. As illustrated, dispensing closure **200** can engage with a container **202** at a landing point **204**. In accordance with some aspects, the container **202** is an injection blow molded plastic bottle. The container **202** and dispensing closure **200** comprise a container assembly.

The dispensing closure **200** can be constructed of various materials known in the art, including, for example, polypropylene material or other polymer material. A pliable sealing

surface **206** can be constructed of pliable material, such as a thermoplastic elastomer, silicone, and so forth. The material of the pliable sealing surface **206** and the material of the dispensing closure **200** can bond during a multi-shot molding process. For example, the dispensing closure **200** can be formed with a first-shot and the pliable sealing surface **206** can be formed with the second shot. However, it should be understood that any number of shots can be utilized and can be applied in any order (e.g., the pliable sealing surface can be formed during the first shot and the body and flap portion can be formed during the second shot). When in use, the pliable material conforms to the geometry of a clean out and landing on the bottle to create a leak proof seal. Including a pliable sealing surface at the landing of the container **202** (e.g., contact point between the dispensing closure **200** and the container **202**) is advantageous because the container **202** and the dispensing closure **200** might be formed of the same (or a similar) material, which can produce friction forces when the dispensing closure **200** is engaged with the container **202** (e.g., screwed onto the container). Further, the pliable sealing surface can overcome (e.g., conform to) any deformities or defects that might result in gaps between the dispensing closure **200** and container **202** if a pliable sealing surface is not utilized. The gaps can be developed during the injection molding process (e.g., excessive shrinkage of plastic, deformities of the mold, and so forth).

FIG. **3** illustrates a cut-away view of a portion of a dispensing closure **300** showing a portion of a clean out orifice seal bead, according to an aspect. A flow channel **132** is created to fill an orifice seal bead, according to an aspect.

In view of exemplary systems shown and described above, methods that may be implemented in accordance with the disclosed subject matter, will be better appreciated with reference to various flow charts. While, for purposes of simplicity of explanation, methods are shown and described as a series of blocks, it is to be understood and appreciated that the claimed subject matter is not limited by the number or order of blocks, as some blocks may occur in different orders and/or at substantially the same time with other blocks from what is depicted and described herein. Moreover, not all illustrated blocks may be required to implement methods described herein. It is to be appreciated that functionality associated with blocks may be implemented by software, hardware, a combination thereof or any other suitable means (e.g. device, system, process, component, controller, injection molding machinery, and so on). Additionally, it should be further appreciated that methods disclosed throughout this specification are capable of being stored on an article of manufacture to facilitate transporting and transferring such methods to various devices. Those skilled in the art will understand and appreciate that a method could alternatively be represented as a series of interrelated states or events, such as in a state diagram.

FIG. **4** illustrates a method **400** for producing a dispensing closure, according to an aspect. Method starts, at **402**, when a body portion and a flap portion of the dispensing closure are formed. The body portion comprises a skirt that can engage the dispensing closure with a container and an orifice through which contents of the container are dispensed. The flap portion comprises a cleanout configured to engage the orifice when the flap portion is in a first position (e.g., closed). According to some aspects, forming the body portion comprises creating a non-round orifice. In accordance with some aspects, forming the body portion comprises creating a round orifice.

At **404**, a pliable sealing surface is formed with the body portion and the flap portion. The pliable sealing surface is formed to contact a rim of the orifice and a perimeter of the cleanout when the flap portion is in the first position. According to some aspects, forming the pliable sealing surface comprises forming the pliable sealing surface on the rim of the orifice. According to some aspects, forming the pliable sealing surface comprises forming the pliable sealing surface on a perimeter of the cleanout.

In accordance with some aspects, forming the body portion and the flap portion and forming the pliable sealing surface comprise utilizing a multi-shot injection molding process. According to some aspects, forming the body portion comprises performing a first injection process and forming the pliable sealing surface comprises performing a second injection process. Alternatively or additionally, according to some aspects, forming the body portion comprises utilizing a polymer material and forming the pliable sealing surface comprises utilizing a thermoplastic elastomer. Additionally or alternatively, the pliable sealing surface is formed at a contact point with a container mouth (e.g., landing of the container).

While the foregoing disclosure discusses illustrative aspects and/or embodiments, it should be noted that various changes and modifications could be made herein without departing from the scope of described aspects and/or embodiments as defined by the appended claims. Accordingly, described aspects are intended to embrace all such alterations, modifications and variations that fall within scope of appended claims. Furthermore, although elements of described aspects and/or embodiments may be described or claimed in the singular, the plural is contemplated unless limitation to the singular is explicitly stated. Additionally, all or a portion of any aspect and/or embodiment may be utilized with all or a portion of any other aspect and/or embodiment, unless stated otherwise.

To the extent that the term "includes" is used in either the detailed description or the claims, such term is intended to be inclusive in a manner similar to the term "comprising" as "comprising" is interpreted when employed as a transitional word in a claim. Furthermore, the term "or" as used in either the detailed description or the claims is intended to mean an inclusive "or" rather than an exclusive "or". That is, unless specified otherwise, or clear from the context, the phrase "X employs A or B" is intended to mean any of the natural inclusive permutations. That is, the phrase "X employs A or B" is satisfied by any of the following instances: X employs A; X employs B; or X employs both A and B. In addition, the articles "a" and "an" as used in this application and the appended claims should generally be construed to mean "one or more" unless specified otherwise or clear from the context to be directed to a singular form.

Additionally, in the subject description, the word "exemplary" (and variants thereof) is used to mean serving as an example, instance, or illustration. Any aspect or design described herein as "exemplary" is not necessarily to be construed as preferred or advantageous over other aspects or designs. Rather, use of the word "exemplary" is intended to present concepts in a concrete manner.

What is claimed is:

1. A dispensing closure, comprising:

a body portion comprising:

an end wall;

a non-round orifice in the end wall; and

a skirt that depends from the end wall, the skirt engages the dispensing closure with a container;

a flap portion comprising a depending wall that comprises a cleanout;

a first portion of a pliable sealing surface located around a rim of the non-round orifice; and

a second portion of the pliable sealing surface located at a base of the skirt, wherein a connecting flow channel connects the first portion of the pliable sealing surface and the second portion of the pliable sealing surface.

2. The dispensing closure of claim **1**, wherein the first portion of the pliable sealing surface conforms to a geometry of the cleanout when the flap portion is in a first position.

3. The dispensing closure of claim **1**, wherein the non-round orifice is a tear-drop shaped orifice.

4. The dispensing closure of claim **1**, wherein the first portion of the pliable sealing surface and the second portion of the pliable sealing surface are formed from a thermoplastic elastomer.

5. The dispensing closure of claim **1**, wherein the first portion of the pliable sealing surface and the second portion of the pliable sealing surface are formed from silicone.

6. The dispensing closure of claim **1**, wherein the body portion and the flap portion are formed of a polymer material and the first portion of the pliable sealing surface and the second portion of the pliable sealing surface are formed of a thermoplastic elastomer, and wherein the polymer material and the thermoplastic elastomer bond during a multi-shot molding process.

7. The dispensing closure of claim **1**, wherein the body portion and the flap portion are connected with a hinge, wherein the flap portion contacts the body portion in a first position and does not contact the body portion in a second position.

8. The dispensing closure of claim **7**, wherein the hinge is a living hinge or a pivoting hinge.

9. The dispensing closure of claim **1**, wherein the dispensing closure is formed in a multi-shot injection molding process.

10. The dispensing closure of claim **1**, wherein the first portion of the pliable sealing surface and the second portion of the pliable sealing surface are formed with the connecting flow channel during a single molding process.

11. A container assembly, comprising:

a container; and

a closure operatively attached to the container, the closure comprises:

a body portion comprising:

an end wall;

a skirt that depends from the end wall and engages the closure with the container;

a non-round orifice in the end wall, wherein contents of the container are accessed through the non-round orifice; and

a flap portion comprising a depending wall that comprises a cleanout;

a first portion of a pliable sealing surface located at a rim of the non-round orifice; and

a connecting flow channel connecting the first portion of the pliable sealing surface to a second portion of the pliable sealing surface located at a base of the skirt.

12. The container assembly of claim **11**, wherein the first portion of the pliable sealing surface conforms to a geometry of the cleanout when the flap portion is in a first position.

13. The container assembly of claim **11**, wherein the non-round orifice is a tear-drop shaped orifice.

14. The container assembly of claim **11**, wherein the first portion of the pliable sealing surface and the second portion of the pliable sealing surface are formed from a thermoplastic elastomer.

15. The container assembly of claim **11**, wherein the first portion of the pliable sealing surface and the second portion of the pliable sealing surface are formed from silicone.

16. The container assembly of claim **11**, wherein the body portion and the flap portion are formed of a polymer material and the first portion of the pliable sealing surface and the second portion of the pliable sealing surface are formed of a thermoplastic elastomer, the polymer material and the thermoplastic elastomer bond during a multi-shot molding process.

17. The container assembly of claim **11**, wherein the body portion and the flap portion are connected with a hinge, wherein the flap portion contacts the body portion in a first position and does not contact the body portion in a second position.

18. The container assembly of claim **17**, wherein the hinge is a living hinge or a pivoting hinge.

19. The container assembly of claim **11**, wherein the first portion of the pliable sealing surface and the second portion of the pliable sealing surface are formed with the connecting flow channel during a single molding process.

20. The container assembly of claim **11**, wherein the closure is formed in a multi-shot injection molding process.

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